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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/656,440	09/05/2003	Veshaal Singh	50277-2209	8474

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EXAMINER

PATEL, MANGLESH M

ART UNIT	PAPER NUMBER
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2178

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/07/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/656,440

Applicant(s)

SINGH, VESHAAL

Examiner

Manglesh M. Patel

Art Unit

2178

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 December 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-12,14,15,17,20-28,30,31 and 33-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-12,14,15,17,20-28,30,31 and 33-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This **Non-Final** action is responsive to the RCE filed on December 11, 2006.
2. Claims 1, 4-12, 14, 15, 17, 20-28, 30, 31 and 33-38 are pending. Claim 1 is the independent claim.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 4-12, 14, 15, 17, 20-28, 30, 31 and 33-38 ^{remain} ~~are~~ rejected under 35 U.S.C. 103(a) as being unpatentable over Lau (U.S. Pub 2002/0184213, filed April 25, 2002) in view of Vedula (U.S. 6,823,495, filed Sep 14, 2000).

Regarding Independent claims 1, A computer-implemented method for generating and using a mapping scheme, the method comprising: Receiving commands from a user, wherein said commands establish a mapping between one or more attributes of a source and one or more attributes of a target; Based on said commands, automatically generating a mapping scheme that represents said mapping, wherein said mapping includes at least one of: multiple attributes of said source mapped to a single attribute of said target; and multiple attributes of said target mapped to a single attribute of said source; and using said mapping scheme to perform a single transformation that moves a set of data directly from said source into said target without materializing the entire set of data separate from said source and said target during said transformation; Wherein said source is one of a relational database and an XML document and said target is the other of said relational database and said XML document.

Lau teaches transforming data conforming from a source data to a target data using a mapping to generate a transformation script (paragraph 14). Lau describes mapping between data elements or attributes (paragraph 52). Lau describes that the mapping are between a source tree fragments to a target file that includes attributes (paragraph 79). Lau also teaches in paragraphs 13-17 & 52 & abstract, wherein user input is received to establish a mapping between one or more attributes of source and target & paragraphs 13-17 & 52 & abstract, wherein more than one attribute of source or target is mapped to a single attribute of either. In paragraph 52 Lau clearly describes that the mapping is done between the elements or attributes from the source data instance, therefore he teaches mapping that includes a single

transformation that moves a set of data (the attribute) from the source into the target without including additional attributes or elements from the source instance file. Claim 12, paragraph 69 & 85 further suggest using the mapping of the invention with a relational database. Lau describes that the mapping process includes validation of the source and target structures against a DTD or schema (See abstract). Generally a DTD or schema is used to validate the instance XML document, however the XSLT itself contains an XML document that describes a collection of template rules and instructions, therefore it is not required that a Schema must be used. Lau suggests throughout the reference that “transformation tool 310 could, in alternative embodiments, generate a corresponding DTD or schema file”, however the teachings of Lau are associated with mappings based off instance documents and generally instance documents are validated against a schema or DTD, therefore he doesn’t forcibly suggest describe mapping in a database without the use of schemas or DTD’s. However Vedula explicitly describes the mapping of source and target attributes within a database and does not explicitly require the use of schema’s because he indicates that objects “may be” schemas (see abstract). The example described by Vedula does include mapping between schemas that is typically in XML, however he also states that the mappings could be between databases. Lau and Vedula are analogous art because they both describe methods for generating a mapping scheme. At the time of the invention it would have been obvious to one of ordinary skill in the to include mapping between attributes of a source and target information sources that doesn’t require schemas. The motivation for doing so would have been to provide the extensibility of the mapping tool by allowing mapping between other data sources.

Regarding Dependent claims 4 and 20, Lau discloses *wherein said mapping scheme further includes instructions on how to collapse a number of attributes of said source into a smaller number of attributes of said target* (paragraph 52, wherein multiple attributes of a source are collapsed into a smaller number of attribute of target, such as a single target element).

Regarding Dependent claim 5 and 21, Lau discloses *wherein said mapping scheme further includes instructions on how to expand a number of attributes of said source to a greater number of attributes of said target* (paragraph 44, wherein a number of source targets are transformed into a number of target files, such as a single source to a greater number of target attributes).

Regarding Dependent claims 6 and 22, Lau discloses wherein:

- *The step of receiving commands from a user includes receiving user input that specifies a condition, and an action associated with the condition (paragraphs 52 & 13, wherein the transformation tool receives mapping data from a user that includes specifying a condition, and an action associated with the condition defined in a script); and*
- *The method further comprises the steps of performing an operation that includes converting data, based on said mapping scheme, from the source to a format associated with the target (paragraph 45, wherein the data is converted from a source to a target format based on the mapping scheme);*
- *During performance of said operation, performing the steps of determining whether the condition is satisfied (paragraph 49, wherein the validation using the schema includes determining whether the condition is satisfied prior to conversion into the target format); and*
- *If the condition is satisfied, then performing said action (paragraph 45).*

Regarding Dependent claims 7 and 23, Lau discloses wherein:

- *The step of receiving commands from a user includes receiving user input that specifies a specific set of instructions (paragraph 13, wherein scripts are generated based on the user input); and*
- *The method further comprises the steps of performing an operation that includes converting data, based on said mapping scheme, from the source to a format associated with the target (paragraph 45); and*
- *During performance of said operation, executing the specific set of instructions to affect said operation (paragraph 49).*

Regarding Dependent claims 8 and 24, Lau discloses wherein:

- *The step of receiving commands from a user includes receiving user input that declares a variable to which values can be assigned (Paragraphs 48, 45, 49, 51 and 53);*
- *The method further comprises the steps of performing an operation that includes converting data, based on said mapping scheme, from the source to a format associated with the target (Paragraphs 48, 45, 49, 51 and 53); and*
- *During performance of said operation, using said variable (Paragraphs 48, 45, 49, 51 and 53).*

Regarding Dependent claims 9 and 25, Lau discloses wherein:

- *The step of receiving commands from a user includes receiving user input that specifies a precompiled routine (Paragraphs 48, 45, 49, 51 and 53); and*
- *The method further comprises the steps of performing an operation that includes converting data, based on said mapping scheme, from the source to a format associated with the target (Paragraphs 48, 45, 49, 51 and 53); and*
- *During performance of said operation, calling said precompiled routine to affect said operation (Paragraphs 48, 45, 49, 51 and 53).*

Regarding Dependent claims 10 and 26, Lau discloses:

- *Reading source data definition that includes information about said plurality of attributes of said source (abstract & paragraphs 12-16);*
- *Reading target data definition that includes information about said plurality of attributes of said target (abstract & paragraphs 12-16);*
- *Based on said source data definition and said target data definition, presenting to said user an interface that identifies said plurality of attributes of said source and said plurality of attributes of said target (paragraphs 59-61);*
- *Wherein said step of receiving commands from said user interface is performed by receiving said commands through said interface (paragraphs 59-61).*

Regarding Dependent claims 11 and 27, Lau discloses wherein said mapping scheme includes instructions on how to collapse a number of hierarchical levels of said source into a smaller number of hierarchical levels of said target (paragraphs 79 & 83).

Regarding Dependent claims 12 and 28, Lau discloses wherein said mapping scheme includes instructions on how to expand a number of hierarchical levels of said source to a greater number of hierarchical levels of said target (paragraphs 79 & 83).

Regarding Dependent claims 14 and 30, Lau discloses wherein at least one of the source and the target is an XML document (paragraphs 67 & 69).

Regarding Dependent claims 15 and 31, Lau discloses *wherein said source is one of a database and an XML document and the target is the other of a database and an XML document* (paragraphs 67 & 69).

Regarding Dependent claim 17, the claim describes a computer readable medium performing the method of claim 1 and is therefore rejected under the same rationale.

Regarding Dependent claims 33 and 36, a plurality of said source are related to each other according to a first hierarchy that includes multiple hierarchical levels; a plurality of attributes of said target are related to each other according to a second hierarchy that includes multiple hierarchical levels; and said commands establish, in said mapping, that a particular hierarchical level of said source is mapped to a particular hierarchical level of said target, wherein said particular hierarchical level of said source is at a different depth, within said first hierarchy, than the depth of said particular hierarchical level of said target within said second hierarchy.

Lau doesn't explicitly teach the mapping between the hierarchies of depths. Vedula teaches in figs 1 & 3c, column 9, lines 1-55, wherein source objects shown as attributes on figure 3c include a hierarchy that includes multiple levels, for example 18a and 18b of fig 1. Wherein the target also includes a multiple hierarchy of levels. Wherein the mappings include different depths. Lau and Vedula are analogous art because they both describe methods for generating a mapping scheme. At the time of the invention it would have been obvious to one of ordinary skill in the art to include mapping between hierarchical depths. The motivation for doing so would have been to prevent the restriction for mapping source and target attributes by allowing mapping between different hierarchical depths, thereby improving mapping operation between attributes.

Regarding Dependent claim 34 and 37, wherein said single transformation is performed by executing commands defined in a programming language that supports operations to fetch said set of data directly from said source and store said set of data directly into said target (Lau teaches in paragraph 13 the generation of scripts to fetch data from a source and store data into target).

Regarding Dependent claim 35 and 38, wherein: said mapping scheme includes instructions which define that operations included in said single transformation are grouped to represent a transaction (paragraph 13, wherein the

grouped transaction includes the generated source code file specifying a group of attributes and used to generate the output transaction); and using said mapping scheme to perform said single transformation further comprises performing said operations in said transaction (paragraph 13, wherein the script includes performing a transaction associated with the mapping scheme).

It is noted that any citation ~~[[s]]~~ to specific, pages, columns, lines, or figures in the prior art references and any interpretation of the references should not be considered to be limiting in any way. A reference is relevant for all it contains and may be relied upon for all that it would have reasonably suggested to one having ordinary skill in the art. ~~[[See, MPEP 2123]]~~

Response to Arguments

5. Applicant's arguments filed December 11, 2006 have been fully considered but are not persuasive.

Applicant argues: As is well known, XSLT style sheets are used to transform an XML source to an XML target, where XML schemas are required for both the XML source and the XML target. In contrast, Claim 1 features that one of the source or the target is a relational database which does not store data according to an XML schema. (pg 14, paragraph 1).

In contrast, Claim 1 includes the feature of using a mapping scheme to perform a single transformation of a set of data directly from the source into the target without materializing the entire set of data separate from the source and the target during the transformation. (pg 14, paragraph 2).

However the Examiner respectfully disagrees: XML schemas are not required to be used with a style sheet, because style sheet generally include rules for converting into the target format.

Generally schemas are used with instance XML documents for validation prior to using a XSLT.

Has stated in the claimed rejection: Generally a DTD or schema is used to validate the instance XML document, however the XSLT itself contains an XML document that describes a collection of template rules and instructions, therefore it is not required that a Schema must be used. Lau suggests throughout the reference that "transformation tool 310 could, in alternative embodiments, generate a corresponding DTD or schema file", however the teachings of Lau are associated with

mappings based off instance documents and generally instance documents are validated against a schema or DTD, however he does state that "However, aspects of the present invention, as noted above, are equally applicable to input files which do not define a data instance (see paragraph 50)" however he doesn't forcibly suggest mapping in a database without the use of schemas or DTD's. Lau describes that the generation of script and the use of the XSLT are "additional characteristics or functions" (see paragraph 13). These additional functions are different from the mapping of source and targets objects which are already accomplished prior to generating a script and validation using a schema and generating a source XML file (see paragraph 13). Vedula explicitly describes the mapping of source and target attributes within a database and does not explicitly require the use of schema's because he indicates that objects "may be" schemas (see abstract)." Vedula provides an example of mapping between schemas, however they are not required instead the invention is applicable to relational databases and other information sources (see abstract).

Further the amended portion is not significant to overcome the reference because using broadest reasonable interpretation, using a mapping scheme as described by Lau (abstract) to perform a single transformation of a set of data directly from source into the target (which is the mapping of single or multiple source attributes to single or multiple target attributes, see 44 & 52) without materializing the entire set of data separate from the source and the target during the transformation (which mean to avoid copying all the attributes of the file instead only the selected source attributes are mapped) .

Conclusion



Any inquiry concerning this communication or earlier communications from the examiner should be directed to Manglesh M. Patel whose telephone number is (571) 272-5937. The examiner can normally be reached on M, W 6 am-3 pm T, TH 6 am-2pm, Fr 9am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen S. Hong can be reached on (571) 272-4124. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2178

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Manglesh M. Patel
Patent Examiner
March 2, 2007



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PRIMARY EXAMINER